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NASA Procedural Requirements

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Subject: NASA Information Technology and Institutional Infrastructure Program and Project Management Requirements

Responsible Office: Office of the Chief Engineer

Chapter 1. Introduction

1.1 Background

1.1.1 NASA distinguishes programs and projects in three investment areas or product lines: Research and Technology, Space Flight, and Information Technology (IT) and institutional infrastructure. This document establishes the management requirements for formulating, approving, implementing, and evaluating NASA IT and institutional infrastructure programs and projects consistent with the governance model contained in NPD 1000.0, NASA Governance and Strategic Management Handbook.

1.1.2 This NPR identifies four types of IT and institutional infrastructure investments:

a. IT - Any equipment or interconnected system(s) or subsystem(s) of equipment that is used in the automatic acquisition, storage, analysis, evaluation, manipulation, management, movement, control, display, switching, interchange, transmission, or reception of data or information by the Agency.

(1) NASA distinguishes between highly specialized IT and IT that is not highly specialized. Highly specialized IT is defined in Appendix A, Definitions, and is subject to NPR 7120.5, NASA Space Flight Program and Project Management Requirements, or to NPR 7120.8, NASA Research and Technology Program and Project Management Requirements, depending on the program or project content.

(2) IT programs and projects that are not highly specialized IT are subject to the requirements of this document, unless granted a waiver by the NASA Chief Information Officer (CIO) or the CIO of the Center making the investment, if they meet either of the following criteria:

(a) If the program or project includes the development of new IT systems or capabilities: $500K or greater total development and implementation cost or affects more than one Center.

(b) If the program or project includes modification to or enhancement of existing IT systems or capabilities: $500K or greater total modification/enhancement cost, regardless of how many Centers are affected.

(3) The development, modification, and enhancement of Web-based applications (here meaning software applications that support an Internet browser as a user interface) as a class are subject to this document if they meet one of the above criteria. The development, modification, and enhancement of Web sites and Web-based questionnaires that are used solely to disseminate or collect information are not subject to this document.

(4) For IT that is not highly specialized, the NASA CIO or the CIO of the implementing Center may require a program or project to comply with the requirements of this document even if the program or project does not meet the above criteria. Such a decision may be made, for example, for reasons related to high risk, high importance, or high visibility of the program or project. In making this determination, the CIO will consult and coordinate with the

office that is sponsoring the program or project. In the event of a disagreement, the sponsoring office may appeal the CIO's or delegee's determination. If not resolved at a lower level, the NASA Associate Administrator will make the final determination. The right of appeal shall not be construed as a right to delay or avoid the CIO's authority, i.e., appeals must be pursued expeditiously and responsive interim plans put in place pending hearing of the appeal.

(5) It is possible that programs and projects governed by NPR 7120.5, or NPR 7120.8, will have systems under development with both highly specialized and not highly specialized IT components, which must be developed and integrated under a unified management structure to ensure technical and programmatic success. Such IT components embedded in programs and projects will also comply with policies and other technical requirements to ensure systems and capabilities being developed align with Agency requirements and direction for IT architectures, policies, procedures, standards, guidelines, and practices. The Office of the CIO will work with the Mission Directorate or Mission Support Office responsible for the program or project to identify such embedded IT components and define boundaries and interfaces for inclusion in IT management processes. The Office of the CIO will also coordinate with the appropriate Governing Body required by NPR 7120.5, or NPR 7120.8, as described in section 2.3 of this document to reflect those interactions.

(6) The Mission Directorate or Mission Support Office responsible for a program or project and the Office of the CIO will come to agreement concerning whether particular instances of IT included in the program or project are highly specialized or not highly specialized. The agreements shall be documented in the program plan or project plan (or other appropriate document) encompassing the systems of concern. In the event that disagreements cannot be resolved at a lower level, the NASA Associate Administrator will make the final determination.

b. Construction of Facilities (CoF) - Construction and renovation of facilities on NASA-controlled real property. This investment includes facility planning, budgeting, design, construction, and activation.

(1) Critical technical facilities specifically developed or significantly modified for space flight systems are subject to NPR 7120.5, and not this document.

c. Environmental Compliance and Restoration (ECR) - Environmental restoration and environmental management efforts.

d. Other Mission Support Investments (OMSI) - Investments for developing or enhancing a supporting capability for the Agency or a Center that are not covered elsewhere in this document or under other NPR 7120 guidance. These investments are considered to be important and visible enough to warrant project management reporting and oversight. Examples include Agency-wide implementation of a Presidential directive (e.g., HSPD-12) or certification program (e.g., Voluntary Protection Program); establishment of a centralized capability for mission support services (e.g., transfer of new responsibilities to the NASA Shared Services Center); or implementation of a security and program protection project at a Center (e.g., a new emergency preparedness program).

(1) OMSI programs and projects are subject to the requirements of this document if they meet either of the following criteria:

(a) The total development and implementation cost of the program or project is $1M or greater.

(b) The total development and implementation of the program or project will take one year or longer.

(2) The Official-in-Charge of the implementing Mission Directorate or Mission Support Office or the Center Director of an implementing Center may require a program or project to comply with the requirements of this document even if the program or project does not meet the above criteria. Such a decision may be made, for example, for reasons related to high risk, high importance, or high visibility of the program or project.

1.2 Overview of Management Process

1.2.1 Management of NASA programs and projects is a four-part process consisting of:

a. Formulation - the assessment of feasibility, technology and concepts, risk assessment, teambuilding, development of operations concepts, alternatives evaluation and trade studies, acquisition strategies, establishment of high-level requirements and success criteria, the preparation of plans, budgets, and schedules essential to the success of a program or project, and the identification of how the program or project supports the Agency's strategic needs, goals, objectives, and/or NASA Education outcomes.

b. Approval - the acknowledgement by the responsible official (the Decision Authority) that the program/project has met expectations and formulation requirements and is ready to proceed to implementation.

c. Implementation - the execution of approved plans for the development, construction, testing, and operation of products and services, and the use of control systems to ensure performance to approved plans and alignment with the NASA Strategic Plan.

d. Evaluation - the continual, independent (i.e., outside the advocacy chain of the program or project) evaluation of

the performance of a program or project and incorporation of the evaluation findings to ensure adequacy of planning and execution according to approved plans.

1.2.2 NASA's IT and institutional infrastructure program and project management process is based on life cycles with key decision points at life-cycle phase boundaries, evolving products, a decision authority, a governance structure, and independent assessment.

1.2.3 The scope and scale of NASA IT and institutional infrastructure programs and projects are varied. They include environmental cleanup projects at an individual Center; Agency-wide programs such as the Integrated Enterprise Management Program, which includes a dozen or more financial, procurement, asset management, and human capital projects; and educational projects such as the NASA Explorer Schools, which may be in evaluation for ten years or more. The requirements and management process of IT and institutional infrastructure programs and projects take into account the scope and scale of the program or project.

1.3 Document Structure

1.3.1 The remainder of this document is organized as follows: Chapter 2 defines the life cycles for IT and institutional infrastructure programs and projects, and Chapter 3 defines the roles and responsibilities of program and project management.

1.3.2 Chapter 4 defines the requirements for IT projects.

1.3.3 The requirements for CoF projects are defined in NPD 8820.2, Design and Construction of Facilities, and NPR 8820.2, Facility Project Implementation Guide.

1.3.4 The requirements for ECR projects are defined in NPR 8590.1, NASA Environmental Compliance and Restoration (ECR) Program.

1.3.5 Chapter 5 defines the requirements for OMSI projects.

1.3.6 Chapter 6 has required gate products at Key Decision Points (KDPs) as referenced in Chapters 4 and 5 and defines the waiver process for the requirements in this document.

1.3.7 Appendices A and B contain definitions and acronyms.

1.3.8 Appendices C through F contain templates for key program and project management documents.

1.3.9 Appendix G contains entrance and success criteria for IT project reviews.

1.3.10 In this document, a requirement is identified by "shall," a good practice by "should," permission by "may" or "can," expectation by "will," and descriptive material by "is."

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